

NEW COMBINATIONS IN THE EASTERN SPECIES
OF HEUCHERA (SAXIFRAGACEAE)

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During a recent revision of the eastern North American species of *Heuchera* (Wells, in press), taxonomic decisions were made that necessitate three new nomenclatural combinations. One new species formerly treated as a variety of *H. americana* L. is recognized, and two taxa formerly recognized as species are reduced to varietal rank. For clarity and bibliographical convenience, these new combinations are validated and briefly explained here. Drawings, distribution maps, and fuller discussion of these entities are presented in the revisionary paper (Wells, in press).

1. ***Heuchera caroliniana*** (Rosendahl, Butters, and Lakela) Wells,
comb. nov.

Heuchera americana L. var. *caroliniana* Rosendahl, Butters, and Lakela, Minn. Stud. in Pl. Sci. 2: 59. 1936. TYPE: A. A. Heller 10278. In meadows near Faith, Rowan Co., North Carolina. May 27, 1911. (Holotype, MO).

Heuchera caroliniana resembles *H. americana* L. in possessing small flowers with a short calyx 2.8–4.5 mm long from the base of the ovary to the tip of the calyx lobes. The calyces of *H. americana* measure between 2.9 and 7.2 mm long. However, a number of important differences in floral characters separate the two species. At anthesis, the stamens in *H. caroliniana* flowers are exerted 0.2 to 1.5 mm beyond the calyx, and the styles vary from barely included (up to 0.7 mm shorter than the calyx) to barely exerted (up to 1.1 mm exerted beyond the calyx). In *H. americana* flowers the stamens are exerted 3 to 5 mm beyond the calyx, and the styles extend 2.6 to 6.4 mm beyond the calyx. The shape of the calyx is subhemispherical in *H. caroliniana* but urceolate to campanulate in *H. americana*. The free hypanthium on the adaxial side, from the lowest point in either of the two sinuses flanking the adaxial sepal

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lobe to the point at which the hypanthium becomes free of the ovary wall, ranges from 1.3 to 2.5 mm long in *H. caroliniana* and from 0.6 to 1.5 mm long in *H. americana*.

Heuchera caroliniana also resembles *H. pubescens* Pursh in the degree of exertion of reproductive parts relative to the length of the calyx, although the calyces of *H. pubescens* are much longer, ranging from 8.7 to 13.2 mm long. All three species are similar vegetatively and in ecological requirements.

Rosendahl et al. (1936), based on a small number of herbarium specimens available to them, recognized this entity as a variety of *Heuchera americana*. They regarded its floral characters as "so peculiar that it may be necessary eventually to separate it as a distinct species" (Rosendahl et al., 1936). The decision to recognize *H. caroliniana* as a species is based on field observations and examination of herbarium specimens from every county throughout and adjacent to its range.

Heuchera caroliniana is restricted to a long narrow band in the Piedmont of North Carolina and South Carolina. *Heuchera americana* occurs in counties adjacent to the range of *H. caroliniana* but is not sympatric except along the periphery. Intergradation between these two species is very infrequent.

2. *Heuchera americana* L. var. **hispid**a (Pursh) Wells, *comb. nov.*

*Heuchera hispid*a Pursh, Fl. Am. Sept. 1: 188. 1814. TYPE: *F. Pursh s. n.* High mountains between Fincastle and the Sweet Springs and some other similar places. Craig Co., Virginia. (authentic specimen of Pursh, PH).

This taxon is intermediate between *Heuchera americana* var. *americana* and *H. pubescens* Pursh, and intergrades with both entities in most of its morphological attributes. It is distinguished from *H. americana* var. *americana* (calyx length 2.9–5.5 mm) by its relatively larger flowers with longer calyces (calyx length 5.7–8.8 mm) and free hypanthia and by its larger, fimbriate-margined petals, and from *H. pubescens* (calyx length 8.7–13.2 mm) by its long-exserted stamens and smaller flowers with shorter free hypanthia and petals. Its geographical distribution is in the mountains of Virginia and West Virginia where the ranges of *H. americana* var. *americana* and *H. pubescens* overlap. It appears to be the result of natural hybridization between *H. americana* var. *americana* and *H. pubescens*. Artificial hybrids between these two entities are fertile

and resemble the naturally occurring plants of *H. americana* var. *hispida*. Furthermore, populations of *H. americana* var. *hispida* exhibit greater intrapopulation morphological variability than do either *H. americana* var. *americana* or *H. pubescens* in regions remote from the area of range overlap. The increased variability suggests genetic segregation following hybridization.

This taxon is reduced to varietal rank under *Heuchera americana* because of the intergradation of morphological characters, fertility of artificial hybrids, and difficulty of distinguishing specimens belonging to it from those of *H. americana* var. *americana*. *Heuchera pubescens* is maintained at the specific level because it is strikingly different from *H. americana* var. *americana* in floral characters and is confined to a cooler climatic region, the Ridge and Valley Province of Pennsylvania, Virginia, and West Virginia.

3. ***Heuchera parviflora* Bartling var. *puberula* (Mackenzie & Bush) Wells, *comb. nov.***

Heuchera puberula Mackenzie & Bush, Rept. Mo. Bot. Gard. **16**: 103. 1905.

TYPE: *B. F. Bush s. n.* Monteer, Missouri. July 27, 1899. (HOLOTYPE, NY).

Heuchera puberula f. *glabrata* Steyermark, Rhodora **51**: 117. 1949. TYPE: *Julian A. Steyermark 66615*. North-facing base of limestone bluffs, T 27 N, R 6 W, Shannon Co., Missouri. October 2, 1948. (HOLOTYPE, F).

This variety resembles *Heuchera parviflora* Bartling var. *parviflora* very closely, except for having shorter pubescence on the petioles, peduncles, and leaves, and entire, scale-like bracts subtending the floral branches. Except for a few populations in central Kentucky, the variety is restricted to Arkansas and Missouri. It was described by Mackenzie and Bush (1905) as a distinct species, but it is so similar to *H. parviflora* var. *parviflora* in every detail including flower size and shape, which they considered sources of important differences, that it is treated as a variety of *H. parviflora* here.

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